

What is claimed is:

1. A plasma processing method, comprising:
confining a plasma with a confinement ring;
processing a substrate with said plasma; and
moving said confinement ring in a linear direction during said processing in order to effect said processing.
2. The method as recited in claim 1 wherein said confinement ring is moved via a gear drive assembly.
3. The method as recited in claim 1 wherein said confinement ring is moved in said linear direction in order to control a pressure at a surface of said substrate during said processing.
4. The method as recited in claim 3 wherein said confinement ring is moved in a first linear direction to increase the pressure at the surface of said substrate during said processing, and wherein said confinement ring is moved in a second linear direction opposite the first linear direction to decrease the pressure at the surface of said substrate during said processing.
5. The method as recited in claim 1 wherein a gap is provided between said confinement ring and a plane defined by said substrate during said processing, and wherein the size of said gap is changed during said processing by moving said confinement ring in said linear direction, the size of said gap effecting said processing.
6. The method as recited in claim 1 wherein an etching task is employed in said processing to selectively remove materials from predefined areas on a surface of said substrate.
7. The method as recited in claim 1 wherein a deposition task is employed in said processing to selectively deposit materials on predefined areas on a surface of said substrate.

8. The method as recited in claim 1 wherein said substrate is held stationary during said processing.
9. The method as recited in claim 1 further comprising:
monitoring a process condition above said substrate during said processing;
and
moving said confinement ring based on the monitored process condition.
10. The method as recited in claim 1 wherein the process condition includes temperature or pressure.
11. The method as recited in claim 1 further comprising:
producing an electric field with an electrode; and
moving said electrode in said linear direction during said processing in order to effect said processing.
12. The method as recited in claim 11 wherein said electrode is moved in said linear direction in order to adjust the volume of an active region located above said substrate.
13. The method as recited in claim 11 wherein a gap is provided between said electrode and a plane defined by said substrate during said processing, said gap defining a process region in which said plasma is both ignited and sustained for processing, and wherein the size of said gap is changed during said processing by moving said electrode in said linear direction, the size of said gap controlling a volume of said process region.
14. The method as recited in claim 9 wherein the confinement ring and electrode are moved via a gear drive assembly.
15. The method as recited in claim 9 wherein the confinement ring and electrode are independently moved during said processing.

16. A plasma processing method, comprising:
producing an electric field with an electrode;
processing a substrate with a plasma; and
moving said electrode in a linear direction during said processing in order to effect said processing.
17. The method as recited in claim 16 wherein said electrode is moved via a gear drive assembly.
18. The method as recited in claim 16 wherein said electrode is moved in said linear direction in order to adjust the volume of an active region located above said substrate.
19. The method as recited in claim 16 wherein a gap is provided between said electrode and a plane defined by said substrate when said substrate during said processing, said gap defining a process region in which said plasma is both ignited and sustained for said processing, and wherein the size of said gap is changed during processing by moving said electrode in said linear direction, said gap controlling a volume of said process region.
20. The method as recited in claim 18 wherein said electrode is disposed above or below said substrate during processing, and wherein said electrode is coupled to an RF power supply that supplies said electrode with RF energy.
21. The method as recited in claim 16 further comprising:
monitoring a process condition above said substrate during said processing;
and
moving said electrode based on the monitored process condition.
22. The method as recited in claim 16 further comprising:
confining said plasma with a confinement ring;
independently moving said confinement ring and said electrode in said linear direction during said processing in order to effect said processing.

23. The method as recited in claim 22 wherein said electrode is moved in said linear direction in order to adjust the volume of an active region located above said substrate and wherein said confinement ring is moved in said linear direction in order to control a pressure at a surface of said substrate during said processing.

24. The method as recited in claim 23 further comprising:
monitoring a process condition above said substrate during said processing;
and
moving said electrode and said confinement ring based on the monitored process condition.

25. A method of moving a confinement ring or electrode inside a plasma process chamber, comprising:
rotating a first gear;
rotating a second gear via said rotating first gear;
moving a shaft along a linear path via said rotating second gear, said shaft moving in a first direction when said first gear is rotated clockwise, said shaft moving in a second direction when said first gear is rotated counterclockwise; and
moving said confinement ring or electrode up and down along said linear path via said moving shaft.